

REMARKS

In the Final Office Action mailed December 18, 2006, the Examiner rejected Claims 25-59 under 35 U.S.C. §112(1) for lacking written description, and rejected Claims 25-59 under 35 U.S.C. §103(a) in light of Foldvari, et al., (2000) J. Controlled Release, Volume 66, 15 May 2000, pages 199-214 (hereinafter, “the Foldvari reference”), Baker et al., (1996) Nucleic Acids Research vol. 24, pages 2176-2182 (hereinafter, “the Baker reference”), U.S. Patent No. 6,267,987 (hereinafter, “the Park patent”), and Baldwin, et al., (1998) Advanced Drug Delivery Reviews 33, pages 71-86 (hereinafter, “the Baldwin reference”). Each rejection is addressed below.

I. Rejection of Claims 25-59 under 35 U.S.C. §112(1) – Written Description

Claims 25-59 were rejected under 35 U.S.C. §112(1) for lacking written description. The Examiner stated, “Although applicant states that the amendment to Claim 1 [contacting said tissue with said composition *such that said biological agent is provided to said tissue at biologically active concentrations*] is ‘located throughout the Specification,’ the specification as filed does not support providing biological agents to tissues in biologically active concentrations.” Office Action, page 2.

The Applicants respectfully disagree. However, in order to expedite prosecution of the Application while not acquiescing with the Examiner’s arguments, Claim 25 is now amended such that the term “tissue” is replaced with “tissue, wherein said tissue comprises skin cells,” the term “membrane” is replaced with “skin-patch membrane,” and the term, “biological agent” is replaced with the phrase, “biological agent, wherein said biological agent comprises nucleic acid.” Support for these amendments is located throughout the Specification (see, e.g., originally filed Claims 27, 43 and 44, and paragraphs 70 and 82).

The Examiner is directed to Examples 2-4 (describing the preparation of biocompatible membranes, plasmids, and plasmid DNA/Dendrimer complexes), Example 8 (describing the in vivo transdermal transfection of nucleic acids within the biocompatible membrane to a mouse) and Examples 9-13 (describing the successful transfection of the nucleic acids within the biocompatible membrane to mice at biologically active concentrations). As such, the Specification provides sufficient written description for a skilled artisan to understand and reproduce without undue experimentation the claimed invention (for example, embodiments with

in vivo transdermal transfection of nucleic acid to a subject at a biologically active concentration). The Applicants request these rejections be withdrawn.

II. Rejection of Claims 25-59 under 35 U.S.C. §103(a)

Claims 25-59 are rejected under 35 U.S.C. §103(a) as obvious in light of the Foldvari, Baker, and Baldwin references, and the Park patent. In particular, the Examiner stated, “Foldvari¹ discloses transdermal delivery of protein or nucleotide to the skin tissue (pp. 71-86). Foldvari discloses on page 205 that dendrimers are known to deliver DNA. Baker discloses the use of dendrimers to deliver DNA (pp 2176-2182). The combination of Foldvari and Baker discloses the use of dendrimers for the delivery of proteins or DNA. The combined reference failed to disclose the presence of polyester for the delivery. But Park discloses as carriers for delivery of nucleic acids.” Office Action, page 3. The Applicants respectfully disagree.

The Applicants have amended Claim 25 such that the term “tissue” is replaced with “tissue, wherein said tissue comprises skin cells,” the term “membrane” is replaced with “skin-patch membrane,” and the term, “biological agent” is replaced with the phrase, “biological agent, wherein said biological agent comprises nucleic acid.”

None of the references cited by the Examiner, alone or in combination, teach the use of a skin-patch membrane associated with at least one dendrimer comprising at least one biological agent comprising nucleic acid, as recited in the claims. As such, none of the references cited by the Examiner teach all of the elements of the claimed invention. The Applicants request these rejections be withdrawn.

In addition, one skilled in the art, upon reviewing the references cited by the Examiner, would have no reasonable expectation of obtaining the claimed invention. Prior to the experiments conducted during the development of embodiments for the present invention (see, e.g., Examples I-XIII), it was unknown whether skin-patch membranes could effectively transfect nucleic acid associated with dendrimers. As the feasibility for such a technology was unknown prior to the filing of the present invention, one skilled in the art would not obtain sufficient guidance from the cited references, alone or in combination, for the purpose of obtaining the claimed invention, nor would there be an expectation of success. For example, the

¹ The cited page reference pertains to the Baldwin reference. As such, the Applicants presume the noted sentence refers to the Baldwin reference and not the Foldvari reference.

art does not teach or suggest that skin-patch membrane associated dendrimers are bioavailable, stable, or physically oriented so as to have activity. The Applicants request the claims be passed into allowance.

In addition, the Examiner has not identified where an alleged motivation to combine the cited references exists. In particular, the Examiner stated, "it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the combined teaching of Foldvari and Baker for the delivery of DNA or protein. One having ordinary skill in the art would have been motivated to incorporate polyesters with dendrimer and expect to successfully deliver DNA." However, the Examiner does not indicate where within the cited references or other evidentiary source such an alleged motivation exists and provides no evidence to substantiate the alleged expectation of success. As an obviousness rejection requires an actual showing of where within a prior art reference an alleged suggestion or motivation to combine references exists (or a motivation from some other evidentiary source), so too must the Examiner in the present case provide the locations within the cited references motivating their combination. MPEP §2143. Absent identification of a location within the cited references indicating a motivation to combine the references in the manner suggested by the Examiner, the rejection cannot stand. The Applicants request these rejections be withdrawn.

Moreover, the Examiner has not described how the cited references provide a reasonable expectation of successfully obtaining the claimed invention upon combination of the cited references. In particular, the Examiner stated, "One having ordinary skill in the art would have been motivated to incorporate polyesters with dendrimer and expect to successfully deliver DNA." The Examiner's "expectation" statement fails to indicate how and where the cited references lead one skilled in the art toward a reasonable expectation of successfully obtaining the claimed invention upon combination of the references. Indeed, the Federal Circuit has dictated that in evaluating obviousness, an Examiner must look to see if "the prior art would have suggested to one of ordinary skill in the art that this process should be carried out and would have a reasonable expectation of success, viewed in light of the prior art... **Both the suggestion and the expectation of success must be founded in the prior art**, not the applicant's disclosure." See, *In re Dow Chem.*, 837 F.2d 469, 471 (Fed. Cir. 1988) (emphasis added). As the Examiner has not indicated that the expectation of success is founded in the cited references and where within the cited references such a founding exists, the Examiner's rejection

cannot stand. As noted above, prior to the teachings in the present patent application, there was not a scientific basis for expecting success with the claimed combination. The Applicants request these rejections be withdrawn.

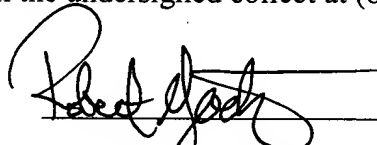
III. Dependent Claim 65

The Applicants now add new Claim 65. New Claim 65 does not constitute new matter. Support for new Claim 65 is located throughout the Specification (see, e.g., Example VIII).

CONCLUSION

Each rejection of the Office Action mailed December 18, 2006 has been addressed. Should the Examiner believe that a telephone interview would aid in the prosecution of this application Applicants encourage the Examiner to call the undersigned collect at (608) 218-6900.

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